

THREE NEW *BEROSUS* LEACH (COLEOPTERA : HYDROPHILIDAE) FROM AUSTRALIA

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Three new species of *Berosus* Leach are described from Australia: *B. sonjae*, *B. sarahae* and *B. wadeae*. Specimens of *B. wadeae* came from the Lake Eyre Basin region of South Australia and those of *B. sarahae* and *B. sonjae* from the Cairns and Townsville regions of north-east Queensland.

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This paper describes two distinctive new *Berosus* which I came across whilst sorting specimens in the South Australian Museum collection (SAMA) and one collected recently in Queensland by my son. The tropical members of this genus in Australia are still poorly known and difficult to separate using the key given in Watts (1987). The three new species described here are however readily separated from any known species, warranting their description without an extensive revision of the genus.

SYSTEMATICS

Berosus wadeae sp. nov.
(Figs 3, 4)

Description (number examined, 26)

Length 5.0 – 6.5 mm. Elongate-oval, not hump-backed, apex of elytron slightly elongate with one short but well marked spine a little distance from suture line (in position of outer spine in species with a pair of apical spines on elytron). Elytron yellow-brown, portions of striae darker, in a few places tending to spread to adjoining striae forming a darker patch on elytron; base of head narrowly black; appendages reddish-brown; ventral surface dark brown to black with apical ventral segment lighter in some specimens. Punctures on head, well marked, weaker and sparser in front, strong and longitudinally elongate behind. Pronotum densely covered with large strong punctures, those on disc longitudinally elongated to about twice as long as wide. Elytron with deeply impressed striae, obliterating the serial punctures except towards back; dorsal

surface covered with short stout setae (often abraded off) arising from shallow, very rugose, confluent punctures giving the interstitial regions of the elytron an evenly rugose appearance which all but obscures the punctation. Ventral surface densely but finely punctured, each puncture with a short setae. Mesosternum with a weak midline keel projecting backward as a spine between mesocoxae. Midline of first ventral abdominal segment weakly keeled in extreme front. Metacoxal process raised, sharply triangular (diamond shaped area in midline shiny and devoid of sculpture). Rugose portions of meso and metafemora half to two thirds the length of respective femora, that on profemur one third length of profemur.

Male

Protarsi four-segmented, basal segment weakly expanded, about twice as long as wide and as long as second and third segment combined, second segment weakly expanded, as long as simple third segment. Male aedeagus as in figs 3 and 4.

Remarks

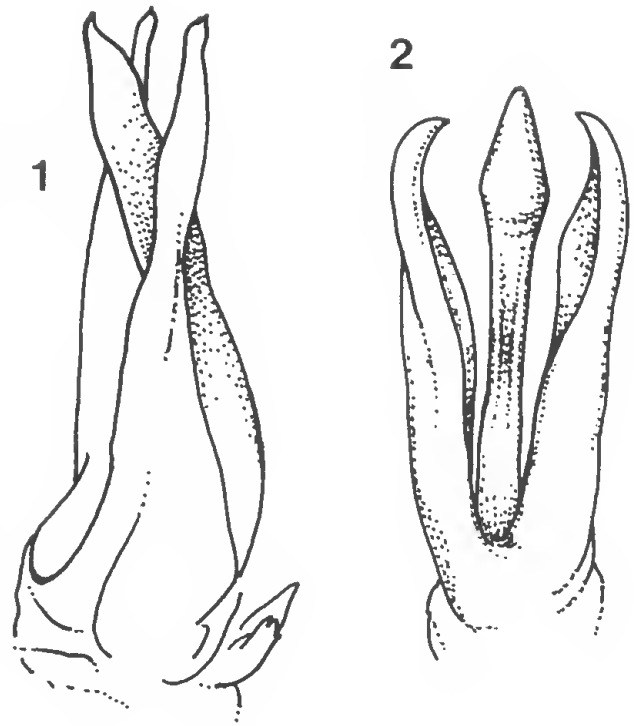
At first glance *B. wadeae* can be easily confused with the widespread and common *B. nutans* W. MacLeay which occurs in the same region. It differs from this species in several characteristics: the elytral striae are weakly impressed in *B. nutans*, strongly impressed in *B. wadeae*; the tips of the elytra are rounded in *B. nutans*, spinose in *B. wadeae*; the pronotal punctures in *B. wadeae* are strong and tend to be elongated longitudinally, in *B. nutans*, they are

small, transversely elongated and interconnected by a network of transverse grooves.

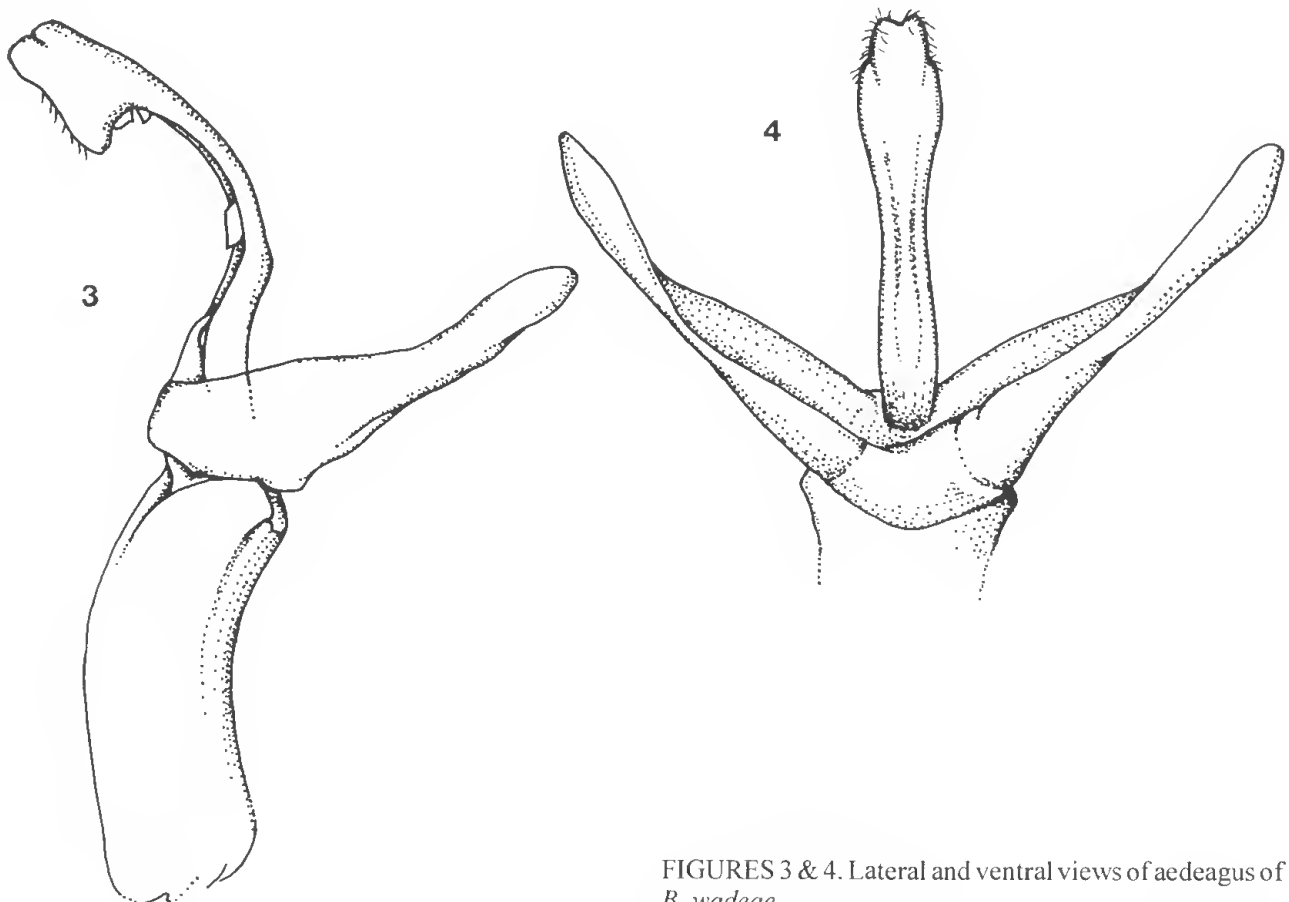
B. wadeae is similar to *B. dallasi* Watts but is larger and broader, the elytral striae are sharper and a little larger and the dark colour on the head of *B. dallasi* is more extensive and not restricted to the basal margin as in most *B. wadeae*. The clearest separation is in the form and strength of the punctures on the head and pronotum. In *B. dallasi* these are moderately strong, sometimes a little longitudinally elongated but seldom confluent. In *B. wadeae* the pronotal punctures on the disc and those on the rear half of the head are strong, virtually confluent, longitudinally elongated to the extent that they form longitudinal grooves, particularly deep on the disc of the pronotum. In some *B. wadeae* there is also a longitudinal groove in the midline of the pronotum. The aedeagi of the two species are distinctive (Figs 3 & 4 and Watts 1987).

Distribution

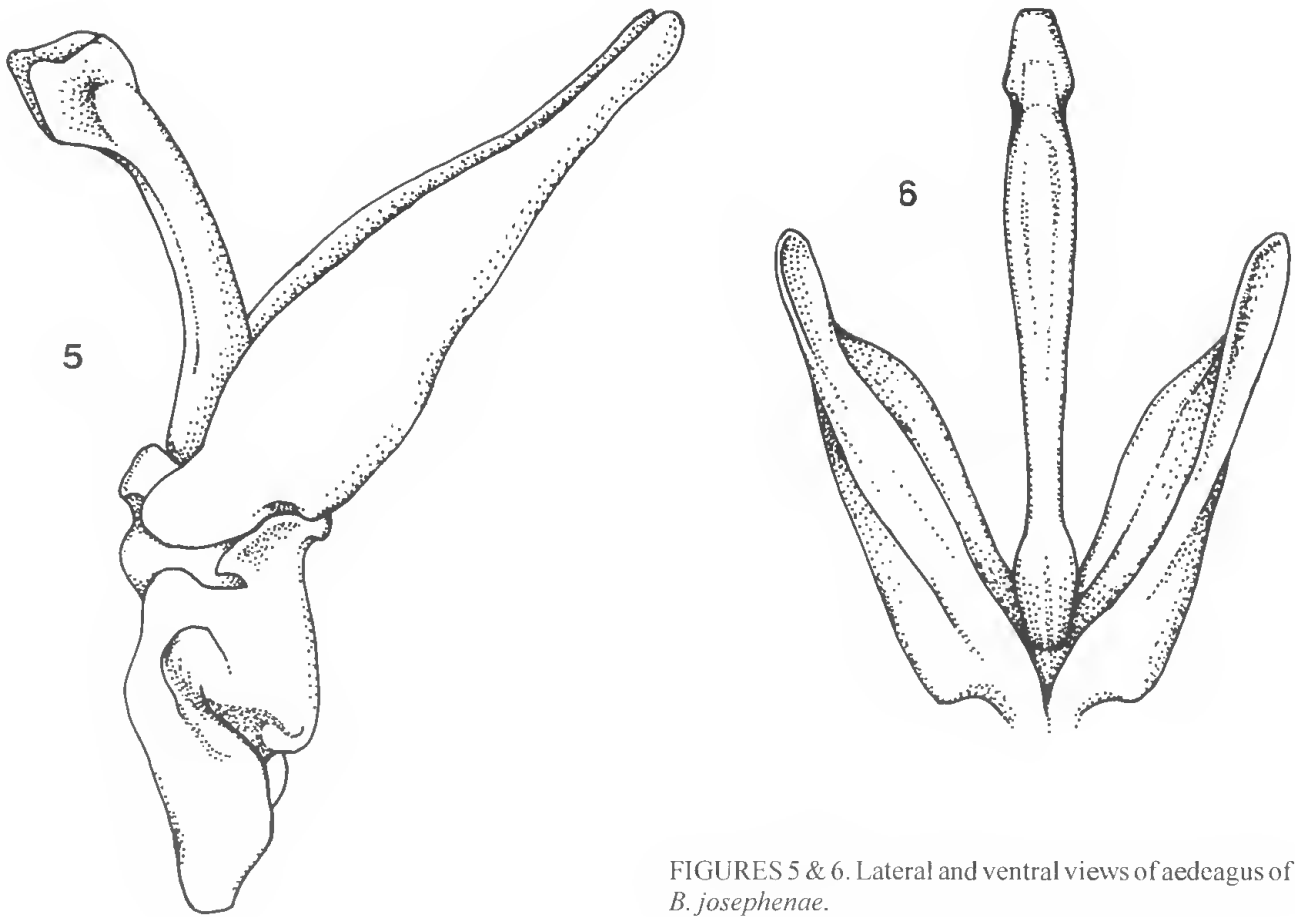
Known from Marree, Big Perry Springs, Clayton Crossing and Coward Springs, all localities in the southern Lake Eyre basin in South Australia.



FIGURES 1 & 2. Lateral and ventral views of apical portion of aedeagus of *B. sarahae*.



FIGURES 3 & 4. Lateral and ventral views of aedeagus of *B. wadeae*.



FIGURES 5 & 6. Lateral and ventral views of aedeagus of *B. josephenae*.

Types

Holotype: Male. 'S. Aust. at light. Levi Crk. 8 km NW, Big Perry Springs. 28°, 19.2' 136°, 16.1, 7 Dec. 1974 J.A. Herridge'; in SAMA.

Paratypes: Eighteen, same data as Holotype, in SAMA; 1, 'S. Aust. at light. Marree Racecourse. 1 Dec. 1974. J.A. Herridge'; 5, 'Clayton Crossing, S.A. 13 November 1955. At light. E. T. Giles'; 1, 'S. Aust. Coward Springs. At light. 9 Nov. 1965, G. F. Gross', all in SAMA.

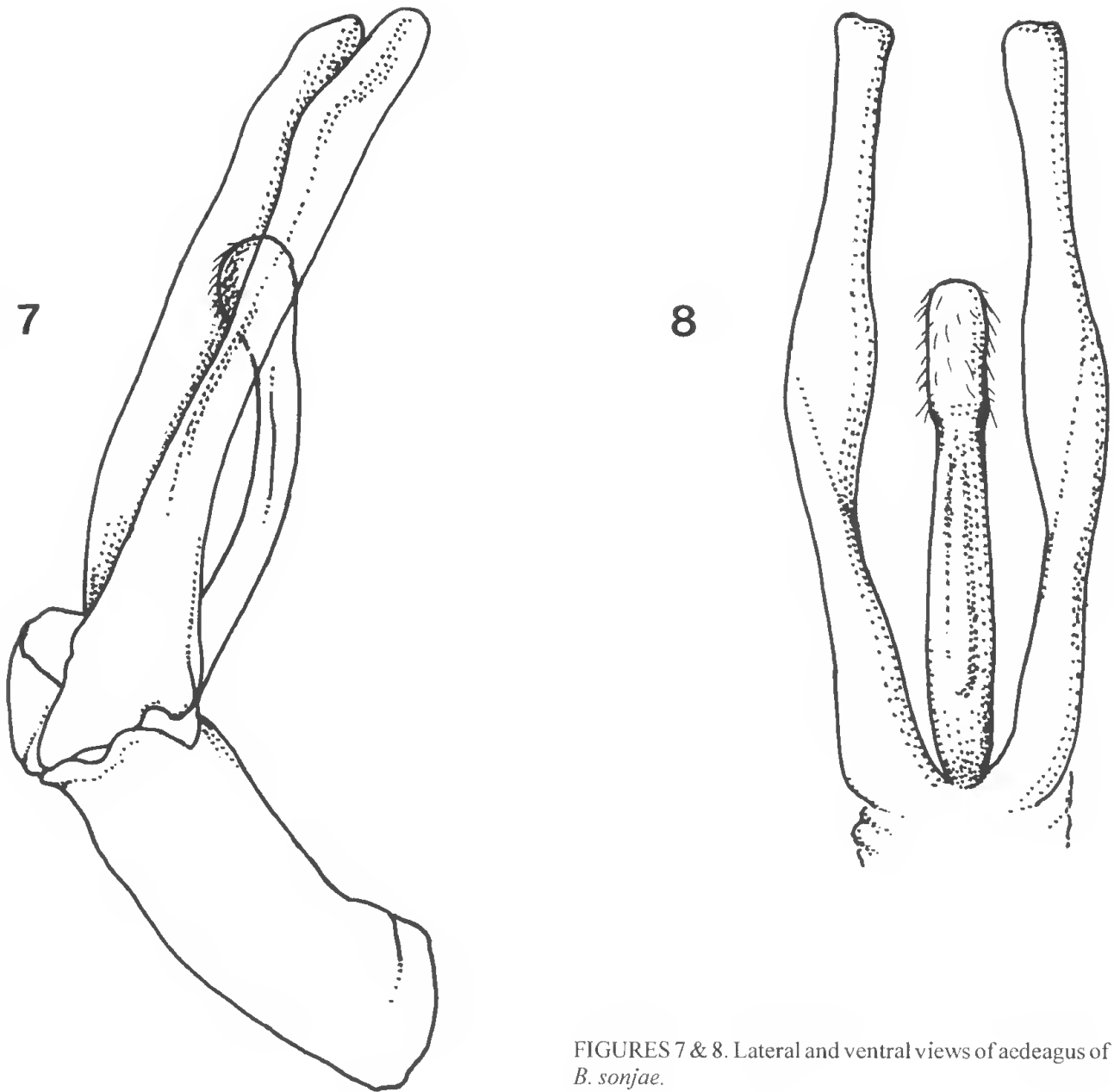
Berosus sarahae sp. nov.

(Figs 1, 2)

Description (number examined, 11)

Length 3.5 – 4.5 mm. Oval, widest in the middle of the elytra. Elytra not, or only weakly, humped. Apex of elytron bluntly pointed. Head relatively broad, red-brown, lighter towards the front. Pronotum red-brown, with two broad longitudinally darker bands in the middle. Elytra red-brown, sutural lines dark brown-black, more marked on disk than on sides, several poorly marked dark spots, the most prominent near

sutural line behind middle. Ventral surface and appendages light red-brown. Punctures on head strong, moderately dense, those on front of head denser but not much smaller than those on the rest of the head. Pronotal punctures moderately and rather evenly covered with moderate sized punctures, stronger and denser laterally, a narrow central longitudinal strip impunctate. Pronotum covered with a fine reticulation. Elytral striae grooved, striae punctures, moderately distinct, longer and sparser towards the sides, the groove sharply defined only on inner edge. Interstitial punctures much smaller than those in adjacent striae, relatively sparse and shallowly impressed. Second elytral striae often lacking groove (as does adjacent basal portion of first stria), consisting of an unevenly spaced row of 5–10 serial punctures some of which may be joined. Elytra covered with a fine reticulation as on pronotum. Metacoxal plates and abdominal sterna covered with strong, dense, rugose punctures. Midline of mesosternum with strongly raised keel, ventral edge flat and slightly concave. Midline of first abdominal sternite keeled. Front edge of metacoxal plates quite strongly ridged. Metacoxal process produced



FIGURES 7 & 8. Lateral and ventral views of aedeagus of *B. sonjae*.

backwards into small spine in midline, central lobes raised, weakly diverging anteriorly, small oval to diamond shaped impunctate depression in midline. Rugose portion of metafemur half to two thirds length of femur, that of mesofemur about half the length and that of profemur a little less than half the length of femur. Apical abdominal sternite deeply and widely notched.

Male

Protarsi four segmented, first segment moderately expanded.

Remarks

The species clearly belongs in the *B. approximans* group of Australian *Berosus* by

virtue of its general size and shape, strongly keeled mesosternum and first abdominal sternite, short second elytral striae and notched apical sternite in both sexes. It however lacks the black metallic head found in all other group members. Its light red-brown ventral surface and strong ventral punctures also separate it from other members of the group (*B. approximans* Fairmaire, *B. discolor* Blackburn, *B. juxtadiscolor* Watts, *B. reardonii* Watts and *B. timmsi* Watts) which all have dark-brown to black ventral surfaces and weaker ventral punctation.

Distribution

Kuranda and Cairns district, North Queensland.

The Cairns district specimens were taken at light, the Mt Molloy specimens in 100–300 cm deep water in a seasonal swamp.

Types

Holotype: Male. 'Cairns dist. A.M. Lea', in SAMA.

Paratypes: 9, same data as holotype, in SAMA; 1, 'Kuranda Queensland, Griffith Collection, Id by A.M. Lea', in SAMA; 7, '2 km N Mt Molloy, Qld, 30.3.96, C. Watts', in SAMA.

Berosus sonjae sp. nov.

(Figs 7, 8)

Description (number examined, 13)

Length, 4.5–5.5 mm. Elongate oval, not hump-backed, apex of elytron with strong outer spine, lacking inner spine. Elytron yellow-brown, portions of stria and punctures darker, stronger in a few places giving elytron two–three vague darker broad bands. Ventral surface, other than appendages darker, rugose portions of femora same yellow-brown colour as rest of leg. Punctures on head strong, those towards rear tending to form longitudinal rows in some specimens, weaker and sparser in front. Pronotum evenly covered with large, round, even-sized

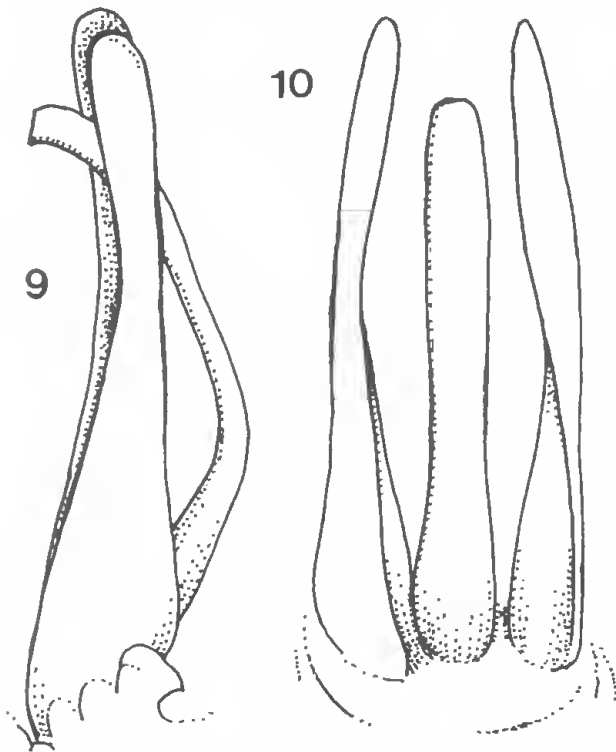
punctures most $1/4$ and $1/2$ a puncture width apart. Elytral striae well impressed, almost masking punctures in many places, punctures becoming much larger towards apex and sides, interstitial punctures setose, rather shallow particularly at sides where they become subobsolete, about half the size of those on pronotum, in most interstriae arranged in one loose row. Ventral surface densely rugose-punctate except for small diamond-shaped portion in centre of metasternum. Mesosternum with weak midline keel, metasternum with short, weak, midline keel anteriorly. Hind margin of apical (5th visible) sternite broadly and shallowly concave. Midline of first sternite weakly keeled in extreme front. Metacoxal process raised, triangular. Rugose portions of meso- and metafemur $2/3$ to $3/4$ length of femur, that on profemur somewhat less.

Male

Protarsi four segmented, basal segment a little swollen, about length of second and third segments combined, second and third segments same length in dorsal view, third longer in lateral view, not enlarged, total length about equal to length of tibia. Male genitalia with short aedeagus (Figs 7 & 8).

Remarks

Berosus sonjae belongs to the section of Australian *Berosus* characterised by the lack of a strong mesosternal pillar, normal elytral punctation, and uniform and relatively large punctures on pronotum (*B. amoenus* Watts, *B. josephenae* Watts and *B. gibbae* Watts). It can be separated from all of these by the distinctive male genitalia which has the aedeagus much shorter than the parameres, the tips of which are truncated (Figs 5–10) (When I first saw the aedeagus I assumed I had damaged it in the extraction but further dissections proved this wrong). In addition to the difference in the male genitalia it can be separated from *B. amoenus* by its yellow-brown rather than black head; from *B. josephenae* by its lighter coloured femora, and by the lateral interstitial punctures which are hard to trace and often marked only by setae, whereas in *B. josephenae* they are large but shallow and almost twice the diameter of those on disc; from *B. gibbae* in being somewhat larger, with rather closer and more regular punctation on pronotum, lack of a well marked fine reticulation on elytra and its elytral striae tending to be more deeply impressed.



FIGURES 9 & 10. Lateral and ventral views of apical portion of aedeagus of *B. gibbae*.

Distribution

Known only from the type locality in North Queensland. All specimens were taken at light.

Types

Holotype: Male. 'Qld. 70km SW Greenvale 16–28 Jan 95 A. J. Watts', in SAMA.

Paratypes: 4 same data as Holotype, in SAMA; 8 same data as Holotype except 15–24 Feb 95, in SAMA; 2, same data as holotype except 29 Dec – 13 Jan 96, in SAMA.

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REFERENCE

WATTS, C. H. S. 1987. Revision of Australian *Berosus* Leach (Coleoptera : Hydrophilidae). *Records of the South Australian Museum* 21(1): 1–28.